What Is Claimed Is:

1. A graphics processing unit, comprising:

a memory for storing pixel data in binary form, wherein the pixel data are in a red, green and blue (RGB) color space; and

a display pipeline having an RGB color space to a luminance color, blue color difference and red color difference (YCbCr) color space converter module configured to convert the pixel data from the RGB color space to the YCbCr color space, wherein the RGB to YCbCr color space converter module generates a luminance color component (Y) of the pixel data by adding ¼ of a red color (R) component of the pixel data to ½ of a green color (G) component of the pixel data and ¼ of a blue color (B) component of the pixel data.

2. The graphics processing unit of claim 1, wherein the RGB to YCbCr color space converter module determines the luminance color component (Y) of the pixel data by:

left shifting the green color (G) component of the pixel data by one bit;

adding the result to the red color (R) component of the pixel data and the blue color (B) component of the pixel data; and

right shifting the sum by two bits.

3. The graphics processing unit of claim 1, wherein the RGB to YCbCr color space converter module determines the luminance color component (Y) of the pixel data by:

left shifting the green color (G) component of the pixel data by one bit;

adding the result to the red color (R) component of the pixel data and the blue color (B) component of the pixel data;

performing a numerical rounding operation on the sum; and

right shifting the sum by two bits.

4. The graphics processing unit of claim 1, wherein the RGB to YCbCr color space converter module determines a blue color difference component (Cb) of the pixel data by subtracting the luminance color component (Y) of the pixel data from the blue color (B) component; and dividing the result by two.

5. The graphics processing unit of claim 1, wherein the RGB to YCbCr color space converter module determines a blue color difference component (Cb) of the pixel data by subtracting the luminance color component (Y) of the pixel data from the blue color (B) component of the pixel data; and right shifting the sum by one bit.

6. The graphics processing unit of claim 4, wherein the RGB to YCbCr color space converter module determines a red color difference component (Cr) of the pixel data by subtracting the luminance color component (Y) of the pixel data from the red color (R) component of the pixel data; and dividing the result by two.

7. The graphics processing unit of claim 5, wherein the RGB to YCbCr color space converter module determines a red color difference component (Cr) of the pixel data by subtracting the luminance color component (Y) of the pixel data from the red color (R) component of the pixel data; and right shifting the result by one bit.

8. The graphics processing unit of claim 1, further comprising a memory management unit for reading the pixel data from the memory and passing the pixel data to the display pipeline.

9. The graphics processing unit of claim 1, wherein the display pipeline further comprises a YCbCr to RGB color space converter module configured to convert the pixel data from the YCbCr color space to the RGB color space, wherein the YCbCr to RGB color space converter module generates the red color (R) component of the pixel data by adding the luminance color component (Y) to twice the red color difference component (Cr) of the pixel data.

10. The graphics processing unit of claim 9, wherein the red color (R) component of the pixel data is generated by left shifting the red color difference component (Cr)

of the pixel data by one bit; and adding the result to the luminance color component (Y) of the pixel data.

11. The graphics processing unit of claim 9, wherein the YCbCr to RGB color space converter module further generates the green color (G) component of the pixel data by subtracting the red color difference component (Cr) and the blue color difference component (Cb) of the pixel data from the luminance color component (Y) of the pixel data.

12. The graphics processing unit of claim 11, wherein the YCbCr to RGB color space converter module further generates the blue color (B) component of the pixel data by adding the luminance color component (Y) of the pixel data to twice the blue color difference component (Cb) of the pixel data.

13. The graphics processing unit of claim 11, wherein the YCbCr to RGB color space converter module further generates the blue color (B) component of the pixel data by left shifting the blue color difference (Cb) component of the pixel data by one bit; and adding the result to the luminance color component (Y) of the pixel data.

14. A graphics processing unit, comprising:

a memory for storing pixel data in a red, green and blue (RGB) color space, wherein the pixel data are in binary form; and

a display pipeline having an RGB color space to a luminance color, blue color difference and red color difference (YCbCr) color space converter module configured to convert the pixel data from the RGB color space to the YCbCr color space, wherein the RGB to YCbCr color space converter module determines a luminance color component (Y) of the pixel data by:

left shifting a green color (G) component of the pixel data by one bit;

adding the result to a red color (R) component of the pixel data and a blue color (B) component of the pixel data; and

right shifting the sum by two bits.

15. A graphics processing unit, comprising:

a memory for storing pixel data in a luminance, blue color difference and red color difference (YCbCr) color space; and

a display pipeline having a YCbCr color space to a red, blue and green (RGB) color space converter module configured to convert the pixel data from the YCbCr color space to the RGB color space, wherein the YCbCr to RGB color space converter module determines a red color (R) component of the pixel data by adding a luminance color component (Y) of the pixel data to twice a red color difference component (Cr) of the pixel data.

16. A graphics processing unit, comprising:

a memory for storing pixel data in a luminance, blue color difference and red color difference (YCbCr) color space, wherein the pixel data are in binary form; and

a display pipeline having a YCbCr color space to a red, blue and green (RGB) color space converter module configured to convert the pixel data from the YCbCr color space to the RGB color space, wherein the YCbCr to RGB color space converter module determines a red color (R) component of the pixel data by left shifting a red color difference component (Cr) of the pixel data by one bit; and adding the result to a luminance color component (Y) of the pixel data.

17. A method for processing pixel data, comprising:

receiving the pixel data in a red, blue and green (RGB) color space; and

converting the pixel data from the RGB color space to a luminance, blue color difference and red color difference (YCbCr) color space by adding ¼ of a red color (R) component of the pixel data to ½ of a green color (G) component of the pixel data and ¼ of a blue color (B) component of the pixel data to generate a luminance color component (Y) of the pixel data.

18. The method of claim 17, wherein converting the pixel data from the RGB color space to YCbCr color space further comprises generating a blue color difference component (Cb) of the pixel data by subtracting the luminance color component (Y) of the pixel data from the blue color (B) component; and dividing the result by two.

19. The method of claim 18, wherein converting the pixel data from the RGB color space to YCbCr color space further comprises generating a red color difference component (Cr) of the pixel data by subtracting the luminance color component (Y) of the pixel data from the red color (R) component of the pixel data; and dividing the result by two.

20. The method of claim 19, further comprising converting the pixel data from the YCbCr color space to the RGB color space by adding the luminance color component (Y) of the pixel data to twice the red color difference component (Cr) of the pixel data to generate the red color (R) component of the pixel data.

21. The method of claim 20, wherein converting the pixel data from the YCbCr color space to the RGB color space further comprises generating the green color (G) component of the pixel data by subtracting the red color difference component (Cr) of the pixel data and the blue color difference component (Cb) of the pixel data from the luminance color component (Y) of the pixel data.

22. The method of claim 21, wherein converting the pixel data from the YCbCr color space to the RGB color space further comprises generating the blue color (B) component of the pixel data by adding the luminance color component (Y) of the pixel data to twice the blue color difference component (Cb) of the pixel data.

23. A method for processing pixel data, comprising:

receiving the pixel data in a luminance, blue color difference and red color difference (YCbCr) color space; and

converting the pixel data from the YCbCr color space to a red, blue and green (RGB) color space by adding a luminance color component (Y) to twice a red color difference component (Cr) of the pixel data to generate a red color (R) component of the pixel data.

24. The method of claim 23, wherein converting the pixel data from the YCbCr color space to RGB color space further comprises generating a green color (G) component of the pixel data by subtracting a red color difference component (Cr) of

the pixel data and a blue color difference component (Cb) of the pixel data from the luminance color component (Y) of the pixel data.

25. The method of claim 24, wherein converting the pixel data from the YCbCr color space to RGB color space further comprises generating a blue color (B) component of the pixel data by adding the luminance color component (Y) of the pixel data to twice the blue color difference component (Cb) of the pixel data.

26. The method of claim 25, further comprising converting the pixel data from the RGB color space to the YCbCr color space by generating the luminance color component (Y) of the pixel data by adding ¼ of the red color (R) component of the pixel data to ½ of the green color (G) component of the pixel data and ¼ of the blue color (B) component of the pixel data.